

Remarks

Claims 1-3, 5, 9-23, 25, 29-38, 40, and 42-52 are pending. Claims 4, 6-8, 24, 26-28, 39, and 41 have been canceled. Claims 1, 2, 21, 22, 37, 38, 49, 51, and 52 are amended.

Support for the amendment to claims 1, 21, 37, 49, and 51, may be found, for example, in the specification on page 12, line 22 through page 13, line 3, and on page 7, lines 7-14.

Additional support for claim 49 may be found, for example, in the specification on page 7, lines 1-11.

Support for the amendment to claims 2, 22, 38, and 52 may be found, for example, in original claims 2, 22, 38, and 52.

Claim Rejections - 35 U.S.C. § 112

Claims 49-50 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention in that there is insufficient antecedent basis for the limitation "the polymer film" in part d) in claim 49. The Patent Office also asserts that it is unclear how the second substrate works with the process or what is being contacted with the coated solution.

It is submitted that the amendment to claim 49 overcomes the rejection of claims 49 and 50. Withdrawal of the rejection is requested.

Claim Rejections - 35 U.S.C. § 102

Claims 1-2, 5, 13-15, 20-22, 25, 31-33, and 51 stand rejected under 35 U.S.C. 102(b) as being anticipated by Hallman et al (US 3,762,325).

The Patent Office asserts that Hallman et al. disclose a substrate provided with a coating that is subjected to electromagnetic actinic radiation. The Patent Office further asserts that Hallman et al. disclose that plastic substrates may be coated with inorganic compounds, including metal sulfides, metal halides, and metal selenides, which coating materials may be applied by painting or spraying a solution on a surface of the substrate. The Patent Office further asserts that solvents include aqueous solutions of organic solvents (glycerin) or water alone, and that because water is a nucleophile, an aqueous solution also meets the limitations of claim 20. The Patent Office still further asserts that the coating is

then subjected to actinic radiation in an image-wise manner to render the exposed areas adhesive to ink, thereby modifying the substrate.

Without agreeing to the Patent office's characterization of Hallman et al., or admitting that the rejection is even proper, Applicants submit that while Hallman et al. may generally report a plastic substrate, Hallman et al. fail to properly teach or suggest selecting a "polymeric substrate comprising a fluoropolymer" as in amended claims 1, 21, and 51. For at least this reason, claims 1, 21, and 51 are patentable over Hallman et al. Claims 2, 5, 13-15, 20, 22, 25, and 31-33 depend from patentable claims and are therefore likewise patentable. Withdrawal of the rejection is requested.

Claims 1-2, 5-6, 13-16, 20-22, 25-26, 31-34, and 51 stand rejected under 35 U.S.C. 102(b) as being anticipated by Madsen (US 4,192,764).

The Patent Office asserts that Madsen discloses a method of treating a surface in an image-wise manner with a sensitizing solution comprising a reducible metal salt and a radiation-sensitive reducing agent. The Patent Office further asserts that sensitized substrates are subjected to light radiation to modify the surface, and that suitable substrates include thermoplastic resins and polyester fibers materials. The Patent Office further asserts that solvents for the sensitizing solution include water and mixtures of water and alcohol, and reducing agents include disulfonic acid salts. The Patent Office further asserts that coating methods include curtain coating, roller coating, and spraying, which suggest that only one side is coated with the sensitizer solution. The Patent Office still further asserts that the sensitizer solution comprising a reducing agent, a complexing agent, a metal accelerator, and a basic compound encompasses "at least one sensitizer", and that because water is a nucleophile, an aqueous solution also meets the limitations of claim 20.

Without agreeing to the Patent office's characterization of Madsen, or admitting that the rejection is even proper, Applicants submit that Madsen fails to properly teach or suggest selecting a "polymeric substrate comprising a fluoropolymer" as in amended claims 1, 21, and 51. For at least this reason, claims 1, 21, and 51 are patentable over Madsen. Claims 2, 5-6, 13-16, 20, 22, 25-26, and 31-34 depend from patentable claims and are therefore likewise patentable. Withdrawal of the rejection is requested.

Claims 1-2, 5, 8-9, 11-12, 13-14, 17, 19-23, 25, 28-29, 31-32, 35-38, 40-43, 48-49, and 51-52 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Murahara et al. (US 6,117,497 A).

The Patent Office asserts that Murahara et al. disclose a liquid compound, which is applied to a surface and radiated with UV, visible, or infrared radiation, and that the coating imparts hydrophilicity onto the substrate. The Patent Office further asserts that Murahara et al. teach bonding a substrate, including fluoroplastics, to another material, including the same material, via the liquid compound. The Patent Office further asserts that liquid compounds for modifying fluoroplastics materials comprise metal salts and a solvent, including water and organic liquids. The Patent Office further asserts that the solution may be coated onto the surface of the substrate. The Patent Office still further asserts that Figure 1 and example 1 of Murahara et al. demonstrate a substrate coated with a solution to form a film, where a glass material is placed in contact with the coating, and the article is irradiated through the glass in an image-wise manner. The Patent Office argues that since the materials are pressed together and irradiated, the reference suggests the bonding of the materials. The Patent Office still further asserts that that the Murahara et al. teach a wavelength of 300 nm for applying radiation to the articles, and that because water is a nucleophile, an aqueous solution also meets the limitations of claim 20. Regarding claims 49 and 52, the Patent Office asserts that the reference indicates that reaction takes place at the fluoropolymer/coating interface due to radiation, because by passing through the glass/coating interface to the fluoropolymer material, the radiation is exposed to both interfaces simultaneously. Also, it is the Patent Office's position that an article of Murahara et al.'s invention would be indistinguishable from that of claim 49, since the thin film is fully exposed to the radiation.

Without agreeing to the Patent office's characterization of Murahara et al., or admitting that the rejection is even proper, Applicants submit that Murahara et al. fail to properly teach or suggest an inorganic electron donor comprising a soluble non-volatile salt selected from the group consisting of thiocyanate salts, disulfide salts, tetrasulfide salts, thiocarbonate salts, thiooxalate salts, thiophosphate salts, dithionite salts, selenocyanate salts, selenide salts, and azide salts as in amended claims 1, 21, 37, 49, and 51. For at least this reason, claims 1, 21, 37, 49, and 51 are patentable over Murahara et al. Claims 2, 5, 8-9, 11-14, 17, 19-20, 22-23, 25, 28-29, 31-32, 35-36, 38, 40-43, 48, and 52 depend from patentable claims and are therefore likewise patentable. Withdrawal of the rejection is requested.

Claim Rejections - 35 USC § 103

Claims 4, 24, and 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Murahara et al. (US 6,117,497 A).

The Patent Office asserts that Murahara et al. applies as above, noting the use of metal salts but failing to exemplify those of the applicant's claims 4, 24, and 39. The Patent office further asserts that Murahara et al. list metal triiodide salts and alkali metal iodide salt, and that the metal salts serve to bond with fluorine atoms and improve adhesion. It is the Patent Office's position that it would have been prima facie obvious to choose an alkali metal salt like LiI for use in the invention with the expectancy of equally improving adhesion to fluoropolymer materials.

It is submitted that claims 1 and 21 are patentable over Murahara et al. for at least the reasons discussed above. Claims 4, 24, and 39 depend from patentable claims and are therefore likewise patentable. Withdrawal of the rejection is requested.

Claims 10 and 30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Murahara et al. (US 6,117,497 A) as evidenced by Daikin Industries (EP 0 769 517 A1).

The Patent Office asserts that Murahara et al. indicate the use of different radiation sources but does not exemplify the use of a radiation source having a wavelength of about 250-about 260 nm. The Patent Office further asserts that Murahara et al. note the use of KrF lasers for applying ultraviolet radiation to thermoplastic materials to liberate hydrogens from the substrate material. The Patent Office asserts that Daikin Industries notes the common wavelengths for conventional lasers mentioned in Murahara, where KrF lasers are known to operate at 249 nm. It is the Patent office's position that this wavelength fits the applicant's "about 250 nm", and because Murahara et al. indicate the use of KrF for applying radiation to thermoplastic substrates, it would have been prima facie obvious to choose KrF lasers in the expectancy of equally liberating hydrogens from thermoplastic substrate materials.

It is submitted that claims 1 and 21 are patentable over Murahara et al. for at least the reasons discussed above. It is further submitted that Daikin Industries fails to overcome the deficiencies in Murahara et al. with regard to claims 1 and 21. Claims 10 and 30 depend from patentable claims and are therefore likewise patentable. Withdrawal of the rejection is requested.

In view of the above, it is submitted that the application is in condition for allowance.
Reconsideration of the application is requested.

Respectfully submitted,

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Date

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